SDMS US EPA REGION V -1

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160151

Quality Assurance Sampling Plan

For

Sauget Landfill, Site G

Sauget, St. Clair County, Illinois

Prepared by

Ecology And Environment, Inc.,

EPA Project No.: T05-9503-
Contractor Work Order No.: EIL083 FAA
EPA Contract No.: 68-WO-0037

A P P R O V A L S

Ecology and Environment, Inc.		U. S. EPA	
Thomas Spargo Task Leader	Date	Samuel Borries On-Scene Coordinator	Date
Sammy Sirhan Project Manager	3/25/95 Date		

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1.0 INTRODUCTION

The Ecology and Environment, Inc., Technical Assistance Team (TAT) was tasked by the United States Environmental Protection Agency (U.S. EPA) to support the U.S. EPA On-Scene Coordinator by documenting a funded-removal action at Sauget Landfill, Site G in Sauget, St. Clair County, Illinois (see Site Location Map, Figure 1-1). The site is a former subsurface/surface disposal area which occupies approximately 4.5 acres. The site is one of 12 uncontrolled hazardous waste sites that form the Dead Creek Project (DCP). The site is located in an industrial area adjacent to Dead Creek. The TAT was tasked to prepare a quality assurance sampling plan to determine the extent of contamination (EOC) and to verify the attainment of cleanup levels. Previous sample results indicated a variety of contaminants including volatile organic compound (VOCs), semi-volatile compound (semi-VOCs) including PCBs, dioxin, heavy metals, and pesticides. The scope of the removal action will entail the containment of uncontrolled hazardous substances at the site to eliminate direct contact threat to nearby human and animal populations. The PCB sampling design adopted in this plan follows, wherever practical, the recommendation of the U.S. EPA Toxic Substances Control Administration (TSCA) document No. EPA-560/5-86-017, ***Field Manual For Grid Sampling Of PCB Spill Sites to Verify Cleanup***, dated May 1986 and its companion document No. EPA-560/5-85-026 dated August 1985. Soil/waste sampling methodology for other parameters will follow the U.S. EPA Emergency Response Team (ERT) Guidance No. 2001 and 2012. Air sampling for PCB, dioxin, VOCs, and semi-VOCs is presented in the site-specific Air Monitoring Program (can be found in site file No. 3-B of the OSC Appendices).

The site will be divided into six major areas as the following:

* Unpaved sidewalk along south side of Queeny Avenue (**Queeny Area (QA)**). Sample results collected by the United States Environmental Protection Agency U.S. EPA documented the presence of hazardous substance, i.e. dioxin above applicable action levels.

* The Weise Area (**WA**). This area is a parking lot and a machinery storage yard utilized by the Weise Company. The area is approximately 170 x 200 square feet along side the west fence line of the site,

* The waste pile area (**WP**) (approximately 10 cubic yards) suspected to be contaminated with PCBs according to the Illinois Environmental Protection

Agency (IEPA) data. The pile is located approximately 60 feet southeast of Wiese Engineering Company (occupied business)and outside the fenced area on the west side of the site,

* The general fenced area (**FA**) of the site which encompasses approximately 4.5 acres. Surface soil samples will be collected according to a grid pattern for PCB, dioxin analysis. Some waste samples will be collected from uncovered waste containers from exploration trenchs that will be dug at the site. The collected waste samples will be analyzed for a selected range of parameters to indicate the magnitude of contamination and to estimate the generating source if possible,

* A large depressional area (**DA**) located on the south side of the site which has received surface run-off water from site G, and

* The general off-site area (**OS**) which encompasses other off-site areas that are not mentioned above.

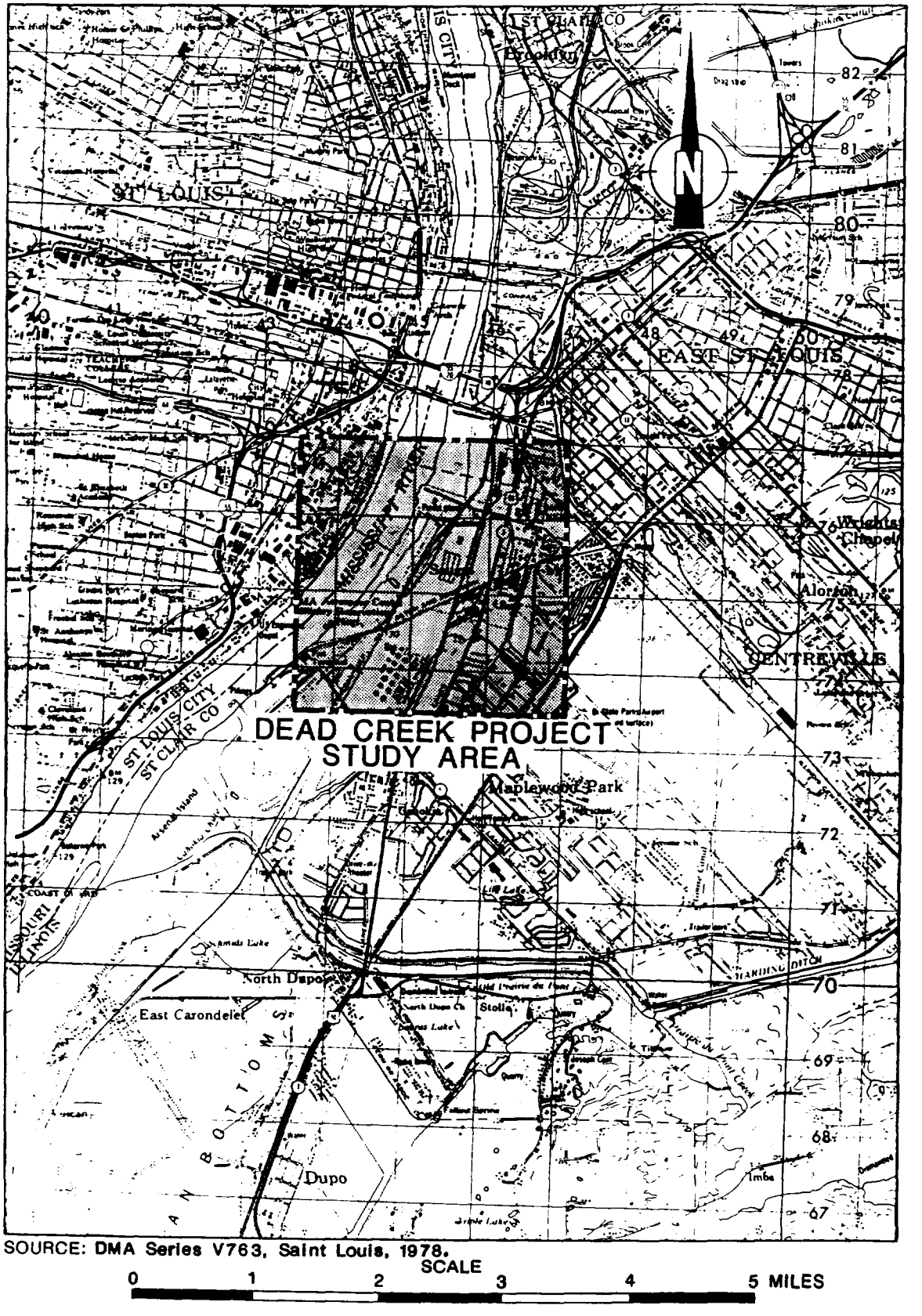
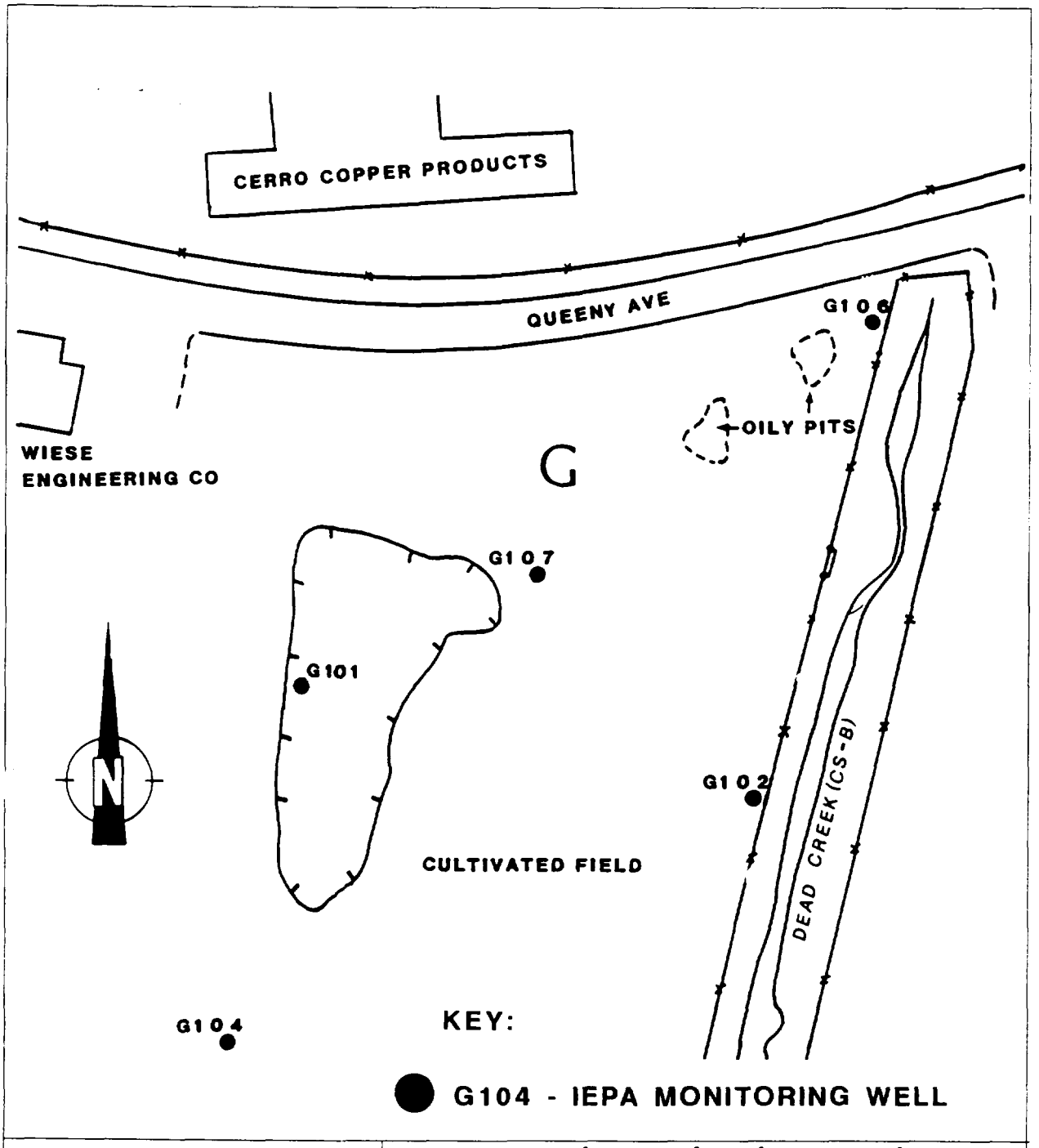


FIGURE 2-1 DEAD CREEK PROJECT STUDY AREA LOCATION

2.0 BACKGROUND

Sauget Site G is one of 12 uncontrolled hazardous waste sites that form the Dead Creek Project. The site was a surface impoundment disposal area which operated for a number of years before closing sometime in mid 1970s. The site is bordered on the north by Queeny Avenue; on the east by Dead Creek; on the south by cultivated fields; and on the west by Wiese Engineering Company property.

The surface of site G is littered with demolition debris, waste piles, metal waste, and waste oil impoundments. Several ~~oil piles~~ heavily oiled areas have been observed in the northeast and central portions of the site. A large depression is found immediately south of the mounded area in the central parts of the fenced area. The site fenced area encompasses approximately 4.5 acres located in a light industrial/commercial area in Suaget, St. Clair County, Illinois. The nearest active business, employing more than five people is located approximately 100 feet ~~east~~ west of the site fence line. The nearest residential area in the vicinity of the site is located approximately ~~500 to 700~~ 1,000 feet southeast of the site and 500 feet west of the site.



ILLINOIS

ecology and environment, inc.
Technical Assistance Team
Region V
111 West Jackson Blvd.
Chicago, IL 60604

TITLE: SITE FEATURES MAP		FIGURE #: 2
SITE: SAUGET AREA 1 - SITE G		SCALE: NOT TO SCALE
CITY: SAUGET	STATE: ILLINOIS	PAN: EIL0836SAA

3.0 DATA USE OBJECTIVES

The objective of this sampling project is to evaluate the magnitude of contamination and the attainment of established cleanup levels for those areas that constitute a direct contact threat due to proximity to local citizens or businesses. If appropriate PCB results of soil samples collected from the unpaved sidewalk of Queeny Avenue will be evaluated against the requirements of 40 CFR 761. 123 through 125, ***Requirements For PCB Spills Cleanup***. A copy of the referenced 40 CFR is included as Appendix A-1 of this plan. Sample results for dioxin will be evaluated against the Agency for Toxic Substances and Diseases Registry (ATSDR) 20 parts per billion (ppb) recommended cleanup level. Other sample data collected from the site will be evaluated according to the established cleanup level for industrial areas.

If applicable, the waste pile located along the west corner of the site will be cleaned according to 40 CFR 761.123 thru 125 . The sampling scheme for the Pile area will follow the U.S. EPA ERT SOP No. 2017 and/or the Field Manual For Grid Sampling of PCB Spill Sites to Verify Cleanup (hexagonal-grid sampling).

All cleanup levels established for the site are risk-based standards at or below which no adverse effects will result from exposure by local human, [redacted] populations.

4.0 QUALITY ASSURANCE OBJECTIVES

As identified in Sections 2.0 and 3.0 the objective of this project/event applies to the following parameters:

Parameters	Matrix	Intended Use Of Data	QA* Objective
PCB in soil and pesticides	soil/drum	Ensure the effectiv-ness of the cleanup activities and extend . of contamination.	QA2
Dioxin in soil	soil/drum	Ensure the effectiv-ness of the cleanup activities and extent of contamination.	QA2
Heavy Metals in soil	soil/drum	Ensure the effectiv-ness of the cleanup activities and extent of contamination.	QA2
VOCs & semi VOCs in soil	soil/drum	Ensure the effectiv-ness of the cleanup activities and extent of contamination	QA2
VOCs, Semi-VOCs PCBs, dioxin in air samples	Air Samples	Estimate off-site migration of pollutants that may be triggered by on-site activities to ensure public safety.	QA2

Soil samples from the unpaved sidewalk of Queeny Avenue will be collected and screened for PCB content using ENSYS immunoassay test kits. A selected 10% of the screened samples will be forwarded for off-site laboratory confirmation analysis. The

* QA objective conforms to QA/QC requirements of OSWER Directive No. 9360.4-1.

selected 10% will be composed of the screened samples as the following:

* Approximately 80% of the selected confirmatory samples will represent positively tested samples, i.e. contain PCBs.

* Approximately 20% of the confirmatory samples will represent the clean-tested samples.

Soil samples collected for other parameters will be according to available standard operating procedures published by Office of Solid Waste and Emergency Response (OSWER) guidance and/or the U.S. EPA ERT procedures. Air samples collected for PCB and dioxin analysis will be according to the updated SOP No. FA133C titled "*Monitoring for Particulate and Vapor phase Pollutants using the General Metals PS-1 or Portable Particulate/Vapor sampler*". The SOP was reviewed and finalized by the U.S. EPA Environmental Monitoring and Compliance Branch on March 10, 1987. Air samples collected for VOCs, semi-VOCs, and metals will be according to U.S EPA Method No. T04 using high-flow Gilian pumps. Further air sampling information can be found in the site-specific Air Monitoring Program.

5.0 APPROACH AND SAMPLING METHODOLOGIES

5.1 SAMPLING EQUIPMENT

The following equipment will be utilized to obtain environmental samples from the respective media/matrix:

Parameter/Matrix	**Sampling Equipment Fabrication**	**Dedicated**
PCB, dioxin, pesticides, and heavy metal in soil	**Stainless-steel trowels and pre-cleaned glass jars.[1] and wooden tongue-depressor. Dioxin Samples will be collected by stainless-steel trowel only.**	**Yes**
VOCs and semi VOCs in soil	**Stainless-steel trowel into a pre-cleaned narrow mouth glass jars with teflon ring.**	**Yes**
PCB, dioxin, VOCs, and semi-VOCs in air.	***Refer to the site Air Monitoring Program.***	

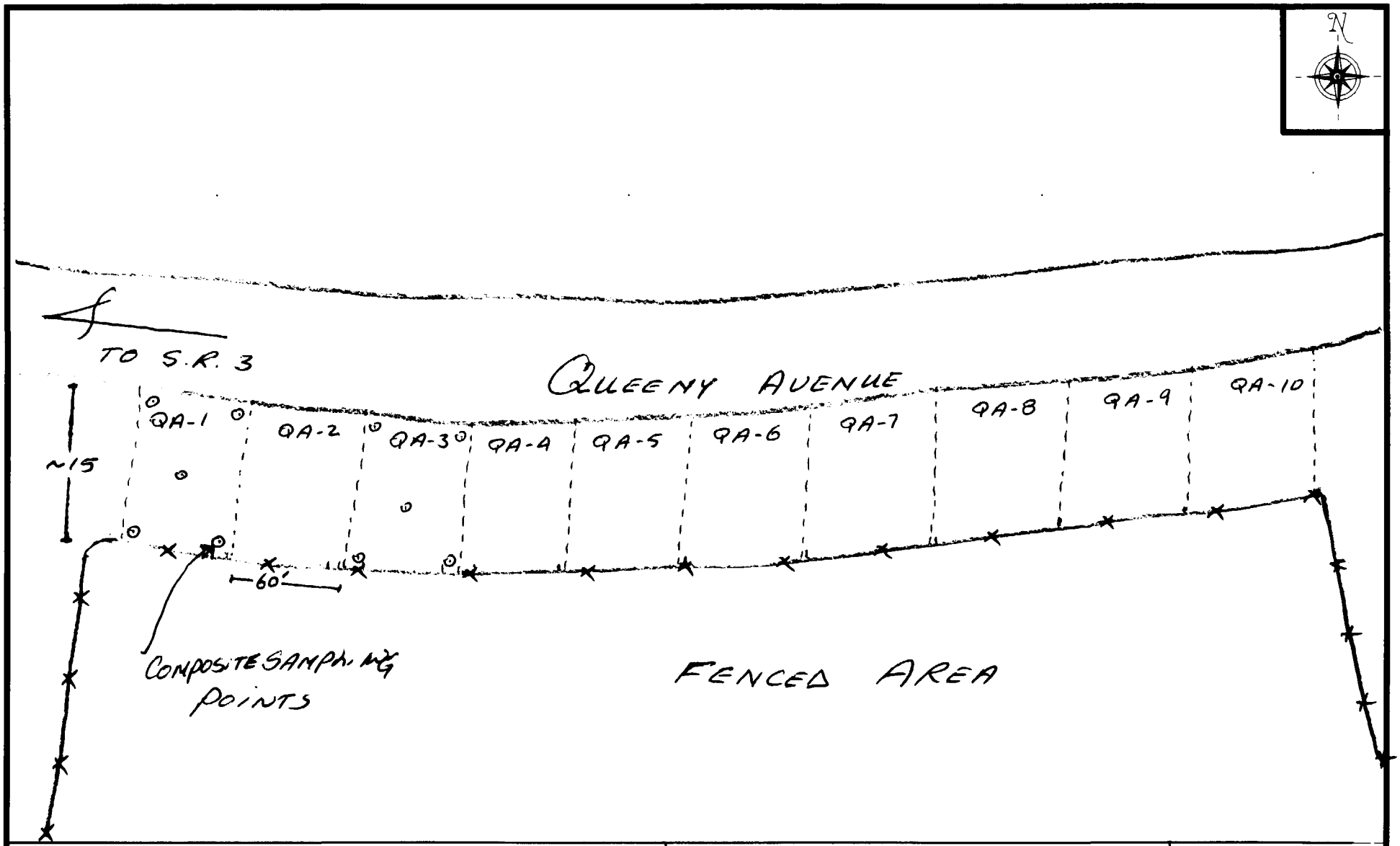
5.2 SAMPLING DESIGN

Sampling design for this event will be discussed individually for each area of the six areas of concern as indicated in the next few pages.

[1] Certificate of analysis of pre-cleaned glass jars can be found in the site files.

5.2.1 Sampling Design For Queeny Area (QA):

This area will be divided into 10 sub-sections each of approximately 60 X 15 square feet area (see attached Sampling Location Map/Queeny Area, Figure 1). Ten composite soil sample, QA-1 through QA-10, will be collected from the grids . The composite sample will be drawn from five alliquotes within each grid (four corners and a center point). The volume of soil collected from the five sampling points (alliquotes) will be of identical volume to prevent dilution among sampling points and to increase representativeness. Soil samples collected will be analyzed for PCB using U.S. EPA SW-846 Method No. 8080 and for dioxin equivalency using SW-846 Method No. 8280. Additionally, soil samples QA-2 and QA-7 will be analyzed for semi-VOCs to assess a black layer of soil encountered at 2 - 3 inches below ground level in those two locations.

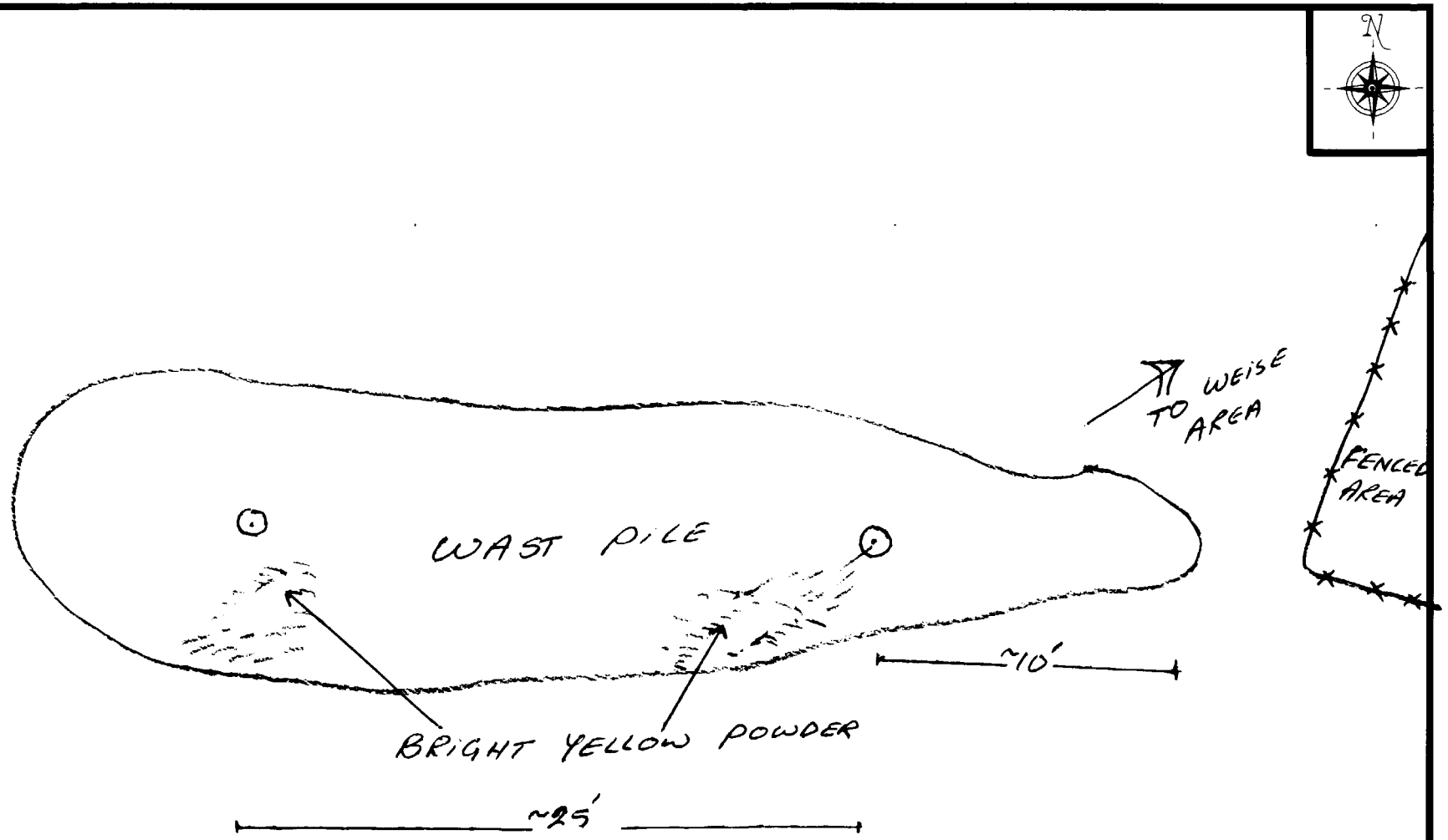


ecology and environment, inc. Technical Assistance Team Region V	SITE: SAUGET LANDFILL\SITE G		SCALE: NO SCALE
	CITY: SAUGET	STATE: IL	PAN: EIL0838FAA
TITLE: SAMPLE LOCATION MAP QUEENY AREA	FIGURE #: 1	DRAWN BY: Sammy Sirhan	DATE: 03/22/1995

5.2.2 Sampling Design For The Waste Pile Area (WP):

The waste pile is located on the west side of the site and suspected to be contaminated with PCBs. The pile is located outside the fence area and occupies an area of approximately 15 x 50 square feet. It was observed that the pile contains a bright yellow powder. To ensure representativeness of samples collected from this area, the following will be considered:

- One composite soil sample will be collected from 0 to 8 inches depth from two sampling points; one from the east half of the pile and another from the west half. Equal volume will be collected and then homogenized using the quartering-method. An equal volume of the bright yellow powder will mixed with the collected soil volume. The alliquote locations are presented in the Sampling Location Map/ Waste Pile Area, Figure 2. The samples will be analyzed for PCB and dioxin. Depth samples will be retrieved using soil recovery auger with a thin-tube wall.

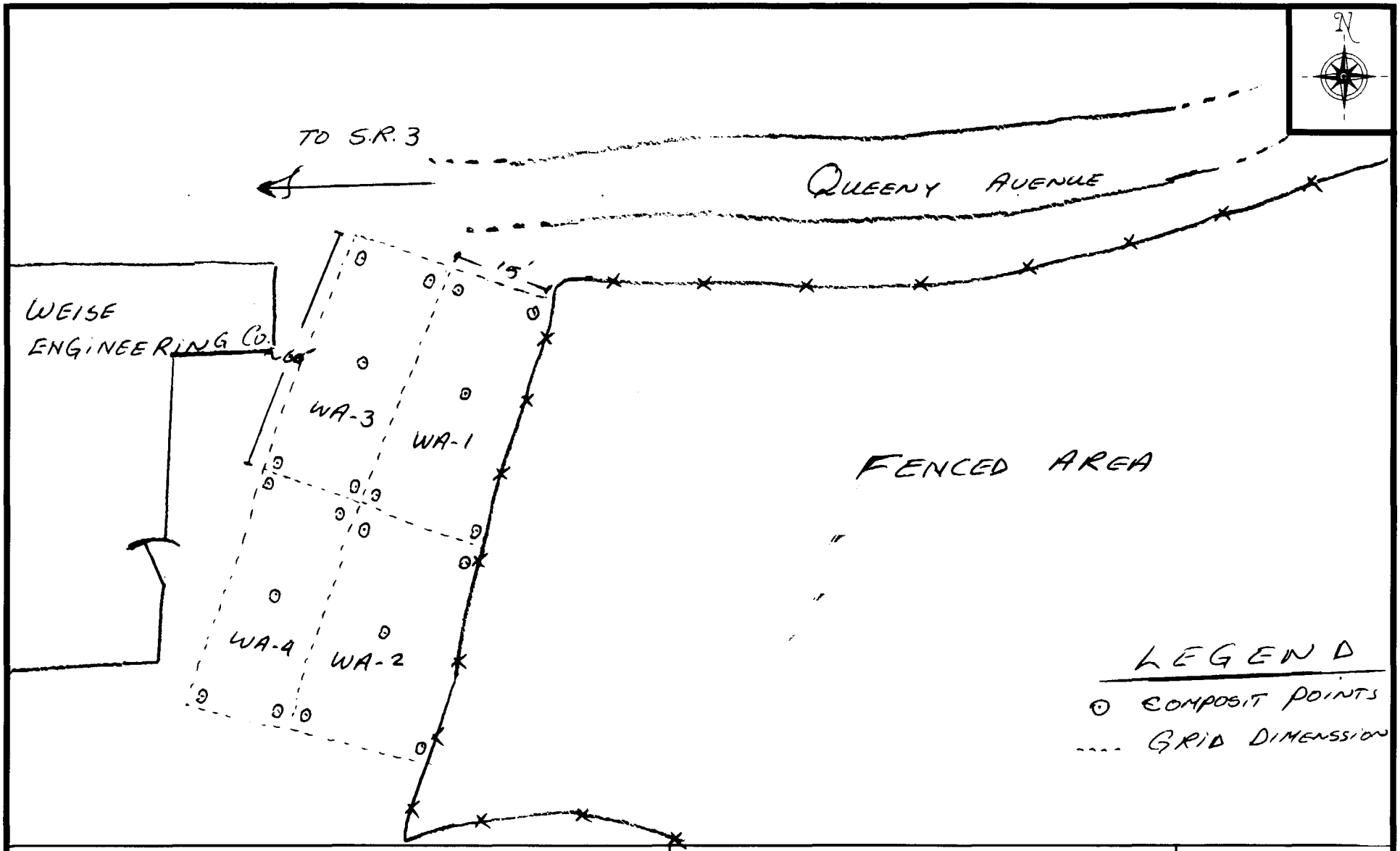


ecology and environment, inc. Technical Assistance Team Region V	SITE: SAUGET LANDFILL\SITE G		SCALE: NO SCALE
	CITY: SAUGET	STATE: IL	PAN: EIL0838FAA
TITLE: **SAMPLE LOCATION MAP** **Waste Pile Area**	FIGURE #: 2	DRAWN BY: Sammy Sirhan	DATE: 03/22/1995

5.2.3 Sampling Design For The Wiese Area(WA):

This area is approximately 30 x 180 feet portion of the Weise Company parking lot along side the site west fence line. Four composite soil samples , WA-1 through WA-4, will be collected from 15 x 90 square feet grids. The location of these soil samples is presented in the Sampling Location Map/Wiese Area, Figure 3. The samples will be composite from five alliquotes from 0 to 3 inches in depth. The collected samples will be analyzed for PCB and dioxin equivalency content.

Thirty-seven soil samples from a hexagonal-grid will be collected from the entire parking lot (approximately 190 x 225 square feet). If sampling points of the hexagonal grid lies within an area that was sampled before, sample will not be collected from these locations. The collected samples will be screened for PCBs at site. A selected 10% will be forwarded to an off-site laboratory confirmation. Sample locations are presented in the attached Wiese Area 37-point grid Map.



ecology and environment, inc. Technical Assistance Team Region V	SITE: SAUGET LANDFILL\SITE G		SCALE: NO SCALE
	CITY: SAUGET	STATE: IL	PAN: EIL0838FAA
TITLE: **SAMPLE LOCATION MAP** **Weise Area**	FIGURE #: 3	DRAWN BY: Sammy Sirhan	DATE: 03/22/1995

5.2.4 Sampling Design For The General Site Area (Fenced Area):

The site area had a history of contamination including PCB, dioxin, heavy metals, VOCs, semi VOCs, and pesticides. The scope of the removal action is to eliminate the direct threat to public health and the environment by consolidating all uncontrolled hazardous substances at the site then overlay it with a protective soil cap.

The general site area will divided into two major areas: the southern half (**SH**) and the northern half (**NF**). Initially, soil samples will be collected from the southern half from a grid pattern. The southern half will be divided into 23 grids. Each grid will be approximately 50 x 100 square feet (see Sample Location Map/FA). ~~Three grab soil samples will be collected from three points within each grid: north, south, and east locations.~~ The ~~samples will be numbered~~ according to the ~~grid number and its physical location~~ within that grid, i.e. sample number ~~SH-9-S will refer~~ to soil sample from the Southern Half (SH) ~~from grid number 9 from the southern portion of it. Composite sample will be created from the three grabs collected from each grid.~~ For example, soil samples SH-1-N, SH-1-S, and SH-1-E will be composite. Compositing will be achieved by mixing equal amounts of the three grab samples collected from each grid. Composite odd-numbered soil samples will be forwarded for dioxin equivalency analysis. Even-numbered samples will be sent for PCB analysis. ~~80 grids (approximately 50 x 100 square feet).~~ The remaining volume of all individual grab samples will be archived at site.

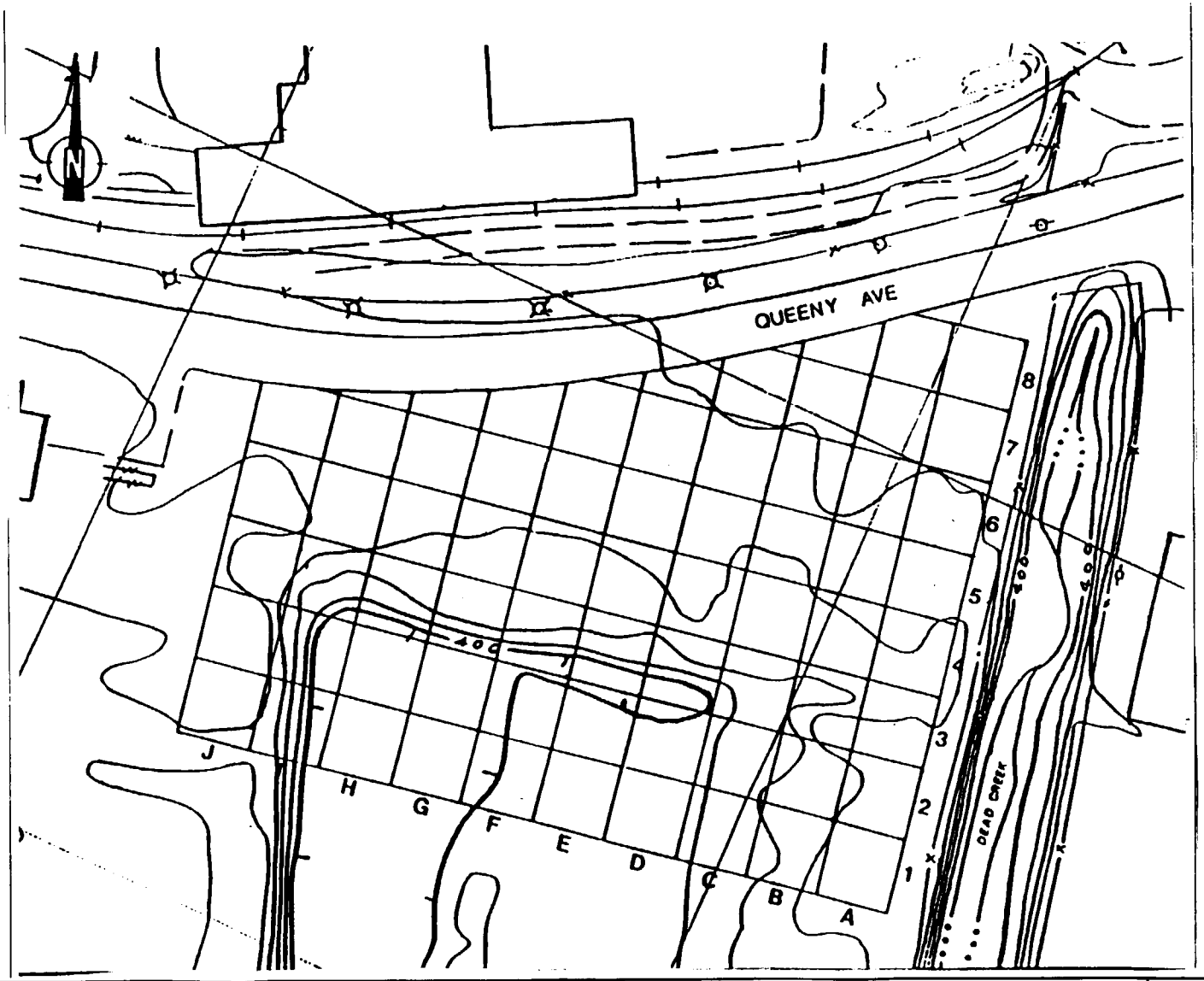
A number of waste samples that are suspected to contain PCBs will be forwarded for PCB pre-cursor analysis. The rationale behind PCB pre-cursor analysis is to evaluate the manufacturing profile of the material and assess suspected generators.

Waste samples will be collected from all exploration trenches that will be dug at he site. Each waste sample will be numbered according to one of the following:

* The number of the exploration pit it was collected from. For example, sample No. EP-3-1 will refer to waste sample No. 1 that was collected from exploration pit No. 3.

* A combination of a letter and a character referring to the physical description of the waste. For example, sample No. Yellow-1 will refer to a waste sample collected from a yellow solid waste. Further description of the waste will be included in the site logbook and the chain of custody for that sample. The rationale for collecting waste samples is the following:

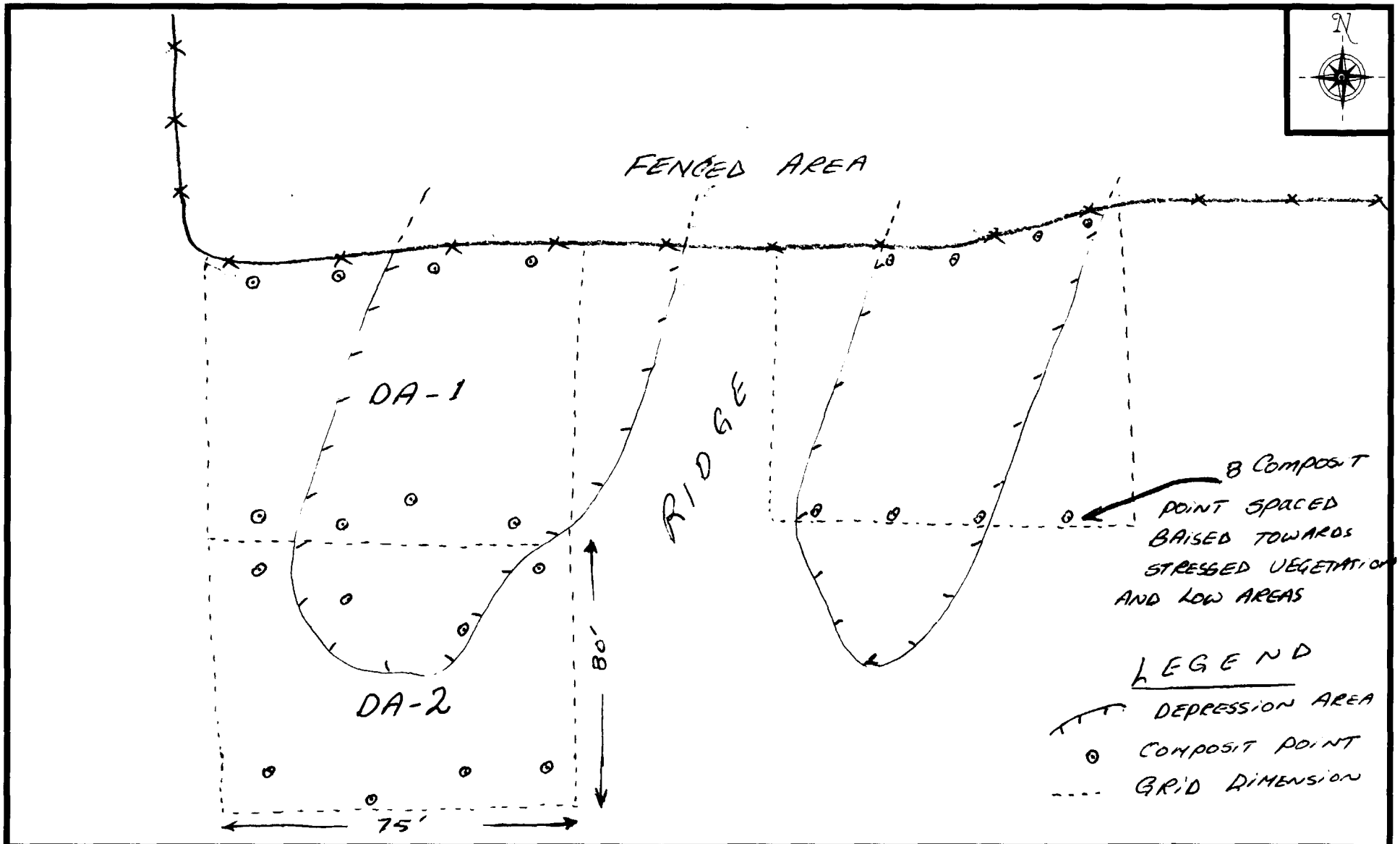
  - To estimate the magnitude of contamination present at the site.
  - To evaluate the parent "*source*" material if possible.



ecology and environment, inc. Technical Assistance Team Region V	SITE: SAUGET LANDFILL\SITE G		SCALE: NO SCALE
	CITY: SAUGET	STATE: IL	PAN: EIL0838FAA
TITLE: **SAMPLE LOCATION MAP FENCED AREA**	FIGURE #: 4	DRAWN BY:	DATE: 03/22/1995

5.2.5 Sampling Design For The Depressional Area (DA):

This area is located on the south side of the site in a down-gradient setting. The area has received, due to its location, surface run-off from the site. To evaluate the impact of the site on this area, three composite soil samples, DA-1 through DA-3, will be collected from approximately 75 x 80 feet grids as shown in the attached Sample Location Map/Depressional Area, Figure 5. Soil samples will be composite from eight alliquotes spaced unevenly in low setting and stressed vegetation areas. Soil sample No. DA-2 will not be analyzed unless warranted by the results of sample No. DA-1 which is a closer proximity to the site (see Sampling Location Map/ Queeny Area



ecology and environment, inc. Technical Assistance Team Region V	SITE: SAUGET LANDFILL\SITE G		SCALE: NO SCALE
	CITY: SAUGET	STATE: IL	PAN: EIL0838FAA
TITLE: **SAMPLE LOCATION MAP** **Depressional Area**	FIGURE #: 5	DRAWN BY: Sammy Sirhan	DATE: 03/22/1995

5.2.6 Sampling Design For the General Off-Site Area (OS):

This section covers the sampling design for off-site areas that are not covered by the previous sections. Composite soil samples will be collected from these areas to assess previous off-site migration of hazardous substances. Two composite soil samples (**OS-1** and **OS-2**) will be collected from 100 x 30 feet grids from the area adjacent to the southwest fence line. A third composite soil sample, **OS-DA**, will be collected from a 40 x 30 grid that covers a depression area located approximately 105 feet southwest of the same fence line (see Sampling Location Map/Off-site Areas). The depression area indicates markings of flooding that took place in that area. All composite samples will be drawn from ten aaliquotes equally spaced. The three samples will be sent for PCB analysis using U.S. EPA SW-846 Method No. 8080 that conforms to QA Level II quality requirements.

Additional three composite soil samples will be collected from the area south and southwest of the Waste Pile location (see the attached map). The three composite soil samples, OSD-1 thru OSD-3 will be collected from 90 x 25 grids extending from the southwest edge of the Waste Pile area boundary. The samples will be forwarded for dioxin toxicity equivalency U.S. EPA SW-846 Method No. 8082 that complies with QA Level II quality requirements. The results of these samples will be used to evaluate off-site migration of dioxin from the pile area onto the open fields downgradient from it.

All soil samples collected from the four major area for PCB analysis will be screened using Ensys immunoassay test kit. Confirmation analysis of 10% of the total screened samples, or better, will be performed at an off-site laboratory following QA Level II guidance. Analysis for other parameters will be performed at an off-site laboratory according to QA Level II. Field Screening for inorganic such as X-ray fluorescence (XRF) may be utalized wherever practical.

Sampling Location map/ Off-site Areas

5.3 STANDARD OPERATING PROCEDURES

5.3.1 Sampling Standard Operating Procedures

The following sampling SOPs will be implemented for this project. These are typically applicable procedures which may be varied or changed as required, dependent upon site conditions, equipment limitations imposed by the procedure. In all instances, the ultimate procedures employed should be documented and associated with the final project deliverables.

General Field Sampling Guidelines (#2001)

Sampling is the selection of a representative portion of a larger population, universe, or body. Through examination of a sample, the characteristics of the larger body from which the sample was drawn can be inferred. In this manner, sampling can be a valuable tool for determining the presence, type, and extent of contamination by hazardous substances in the environment.

The primary objective of all sampling activities is to characterize a waste site accurately so that its impact on human health and the environment can be properly evaluated. It is only through sampling and analysis that site hazards can be measured and the job of cleanup and restoration can be accomplished effectively with minimal risk. The sampling itself must be conducted so that every sample collected retains its original physical form and chemical composition. In this way, sample integrity is insured, quality assurance standards are maintained, and the sample can accurately represent the larger body of material under investigation. The extent to which valid inferences can be drawn from a sample depends on the degree to which the sampling effort conforms to the project's objectives. For example, as few as one sample may produce adequate, technically valid data to address the project's objectives. Meeting the project's objectives requires thorough planning of sampling activities, and implementation of the most appropriate sampling and analytical procedures.

Quality Assurance/Quality Control Samples (#2005)

QA samples are used as an assessment tool to determine if environmental data meet the quality criteria established for a specific application. QC samples are generally used to establish intra-laboratory or analyst-specific precision and bias or to assess the performance of all or a portion of the measurement system. The goal of including QA/QC samples with any sampling or analytical event is to be able to identify, measure and control the sources of error that may be introduced from the time of sample bottle preparation through analysis. Analytical results for these samples can be used to assess accuracy as well as cross contamination. Accuracy refers to the correctness of the concentration value and the qualitative certainty that the analyte is present. It is a combination of both bias (systematic error) and precision (random error). Bias is defined as the deviation of a measured value from a reference value or known spiked amount, and is determined by calculating percent recovery. Precision is a measure of the closeness of agreement among individual measurements. Precision is determined by coefficient of variation calculations.

Soil Sampling (#2012)

Soil samples may be collected using a variety of methods and equipment. The methods and equipment used are dependent on the depth of the desired sample, the type of sample required (disturbed v.s. undisturbed), and the soil type. Near-surface soils may be easily sampled using a spade, trowel, or scoop. Sampling at greater depths may be performed using a hand auger, continuous flight auger, a trier, a split-spoon, or, if required, a backhoe.

Waste Pile Sampling (#2017)

Stainless steel shovels, trowels, or scoops should be used to clear away surface material before samples are collected. For depth samples, a decontaminated auger may be required to advance the hole, then another decontaminated auger used for sample collection. For a sample core, thin-wall tube samplers or grain samplers may be used. Near surfaces, samples can be collected with a clean stainless steel spoon or trowel. All samples collected, except those for volatile organic analysis, should be placed into a Teflon lined or stainless steel pail and mixed thoroughly before transfer to appropriate sample container.

Additionally, all sampling equipment will be decontaminated prior to each sampling event using alconox solution in distilled water followed by a double rinse in lab-grad hexane solution in water then triple rinse in fresh water. Dedicated and disposable sampling equipment will used wherever possible.

5.3.2 Sample Documentation

All sample documents will be completed legibly, in ink. Any corrections or revisions will be made by lining through the incorrect entry and by initialling the error.

* **FIELD LOGBOOK**

The field logbook is essentially a descriptive notebook detailing site activities and observations so that an accurate account of field procedures can be reconstructed in the writer's absence. All entries will be dated and signed by the individuals making the entries, and should include (at a minimum) the following:

1. Site name and project number.
2. Name(s) of personnel on-site.
3. Dates and times of all entries (military time preferred).
4. Descriptions of all site activities, including site entry and exit times.
5. Noteworthy events and discussions.
6. Weather conditions.
7. Site observations.
8. Identification and description of samples and locations.
9. Subcontractor information and names of on-site personnel.
10. Date and time of sample collections, along with chain of custody information.
11. Record of photographs.
12. Site sketches.

* **SAMPLE LABELS**

Sample labels will clearly identify the particular sample and should include the following:

1. Site name and number.
2. .Time and date sample was taken.
3. Sample preservation.
4. Analysis requested.

Optional, but pertinent, information is the sample location. Sample labels will be securely affixed to the sample containers. Tie-on labels can be used if properly secured.

* **CHAIN OF CUSTODY RECORD**

A Chain of Custody record will be maintained from the time the sample is collected to its final deposition. Every transfer of custody must be noted and signed for, and a copy of this record kept by each individual who has signed. When samples (or groups of samples) are not under direct control of the individual responsible for them, they must be stored in a locked container sealed with a Custody Seal.

The Chain of Custody record should include (at minimum) the following:

1. Sample identification number.
2. Sample information.
3. Sample location.
4. Sample date.
5. Name(s) and signature(s) of sampler(s).
6. Signature(s) of any individual(s) with control over samples.

* **CUSTODY SEALS**

Custody Seals demonstrate that a sample container has not been tampered with, or opened. The individual in possession of the sample(s) will sign and date the seal, affixing it in such a manner that the container cannot be opened without breaking the seal. The name of this individual, along with a description of the sample packaging, will be noted in the field logbook.

5.3.2 Sample Handling and Shipment

Each of the sample bottles will be sealed and labeled according to the following protocol. Caps will be secured with custody seals. Bottle labels will contain all required information including site name and sample number, time and date of collection, analysis requested, and preservative used. Sealed bottles will be placed in large metal or plastic coolers, and padded with an absorbent material such as vermiculite.

All sample documents will be affixed to the underside of each cooler lid. The lid will be sealed and affixed on at least two sides with custody seals so that any sign of tampering is easily visible.

6.0 PROJECT ORGANIZATION AND RESPONSIBILITIES

The U.S. EPA OSC, Sam Borries, will provide overall direction to the TAT concerning project sampling needs, objectives and schedule.

The Task Leader, Sammy Sirhan, is the primary point of contact with the EPA OSC. The Task Leader is responsible for the development and completion of the Sampling QA/QC Plan, project team organization, and oversight of all project tasks, including reporting and deliverables.

The Site QC Chemist, Herb Langer, is responsible for performing QA/QC review of the results (if tasked by the U.S. EPA OSC) and ensuring lab performance standards. The Site QC Chemist is also the primary project team contact with the lab if laboratory services are to be procured by the U.S. EPA's TAT contractor.

The following sampling personnel will work on this project:

Personnel	**Responsibility**
Sam Borries	On-Scene Coordinator
Sammy Sirhan	TAT Project Manager
Herb Langer	TAT QA/QC Chemist

The following laboratories will be providing the following analyses:

Lab Name / Location	**Lab Type**	**Parameters**
Environmetrics, Inc.	Analytical	PCB, SW846-8080 VOC, semi-VOCs, metals
Ionic, Inc.	Analytical	Dioxin, SW846-8082 and toxicity eql.
EMT, Inc.	Analytical	PCB pre-cursor

[1] If these services are needed, SW-EPA Method numbers will be documented in the site Logbook.

7.0 QUALITY ASSURANCE REQUIREMENTS

The following requirements apply to the respective QA Objectives and parameters identified in Section 3.0. The following QA Protocols for QA2 data are applicable to all sample matrices and include:

1. Provide sample documentation in the form of field logbooks, the appropriate field data sheets and chain of custody records. Chain of custody records are optional for field screening locations.

2. All instrument calibration and/or performance check procedures/methods will be summarized and documented in the field/personal or instrument log notebook.

3. The detection limit will be determined and recorded, along with the data, where appropriate.

4. Document sample holding times; this includes documentation of sample collection and analysis dates.

5. Provide initial and continuing instrument calibration data.

6. Performance Evaluation samples are optional, if available.

7. Quantitation - provide documentation for quantitative results from screening and the EPA-approved verification method (for screened samples) or just the quantitative results (in the case of unscreened samples).

8.0 DELIVERABLES

The Project Manager, Sammy Sirhan, will maintain contact with the EPA OSC, Sam Borries, to keep him informed about the technical and financial progress of this project. This communication will commence with the issuance of the work assignment and project scoping meeting. Activities under this project will be reported in status and trip reports and other deliverables (e.g., analytical reports, final reports) described herein. Activities will also be summarized in appropriate format for inclusion in monthly.

The following deliverables will be provided under this project:

8.1 ANALYSIS

This sampling event requires analytical services. Documentation of lab selection, raw data, or results will be provided in the analytical report.

8.2 ANALYTICAL REPORT

An analytical report will be prepared for samples analyzed under this plan. It will include information regarding the analytical methods or procedures employed, sample results, QA/QC results, and chain of custody documentation.

8.3 FINAL REPORT

A (draft) Trip Report will be prepared to correlate available background information with data generated under this sampling event and identify supportable conclusions and recommendations which satisfy the objectives of this sampling QA/QC plan.

8.4 PROJECT SCHEDULE OF ACTIVITIES

On site activities will start on February 21, 1995, and will continue as tasked by the U.S. EPA OSC. Table 4 - 8 shows the scheduled sampling activities for this project.

TABLE 4 - 8

SCHEDULE OF ACTIVITIES

ACTIVITY	START DATE	END DATE
Sample collection	03/23/1995	On-going
Field Screening	02/23/1995	On-going
Confirmation Analysis (lab)	02/23/1995	On-going

9.0 DATA VALIDATION

9.1 QA2

Data generated under this QA/QC Sampling Plan will be evaluated accordingly with appropriate criteria contained in the Removal Program Data Validation Procedures which accompany OSWER Directive #9360.4-1.

The results of 10% of the samples in the analytical data packages should be evaluated for all of the elements listed in Section 6.0 of the QA/QC Sampling Plan. The holding times, blank contamination, and detection capability will be reviewed for all remaining samples.

5.2.4 Sampling Design For The General Site Area (Fenced Area):

The site area had a history of contamination including PCB, dioxin, heavy metals, VOCs, semi VOCs, and pesticides. The scope of the removal action is to eliminate the direct threat to public health and the environment by consolidating all uncontrolled hazardous substances at the site then overlay it with a protective soil cap.

The general site area will divided into two major areas: the southern half (**SH**) and the northern half (**NF**). Initially, soil samples will be collected from the southern half from a grid pattern. The southern half will be divided into 23 grids. Each grid will be approximately 50 x 100 square feet (see Sample Location Map/FA). Soil samples SH-1-N, SH-1-S, and SH-1-E will be composite. Compositing will be achieved by mixing equal amounts of the three grab samples collected from each grid. Composite odd-numbered soil samples will be forwarded for dioxin equivalency analysis. Even-numbered samples will be sent for dioxin 2,3,7,8 TCCD analysis. The remaining volume of all individual grab samples will be archived at site.

A number of waste samples that are suspected to contain PCBs will be forwarded for PCB pre-cursor analysis. The rationale behind PCB pre-cursor analysis is to evaluate the manufacturing profile of the material and assess suspected generators.

Waste samples will be collected from all exploration trenches that will be dug at he site. Each waste sample will be numbered according to one of the following:

* The number of the exploration pit it was collected from. For example, sample No. EP-3-1 will refer to waste sample No. 1 that was collected from exploration pit No. 3.

* A combination of a letter and a character referring to the physical description of the waste. For example, sample No. Yellow-1 will refer to a waste sample collected from a yellow solid waste. Further description of the waste will be included in the site logbook and the chain of custody for that sample. The rationale for collecting waste samples is the following:

  - To estimate the magnitude of contamination present at the site.
  - To evaluate the parent "*source*" material if possible.